

## **OWNER'S MANUAL THUNDER SERIES AMPLIFIERS**



Use your smartphone to scan or visit  
[youtube.com/user/MTXThunderforce](https://youtube.com/user/MTXThunderforce)  
to learn how to properly install this  
amplifier.

## **PRODUCT INFORMATION**

Model # \_\_\_\_\_  
Serial # \_\_\_\_\_  
Dealer's Name \_\_\_\_\_  
Date of Purchase \_\_\_\_\_

## **INTRODUCTION**

Thank you for purchasing this MTX Audio Hi-Performance amplifier. Proper installation matched with MTX speakers and subwoofers provide superior sound and performance for endless hours of enjoyment whether you are waking the neighbors or just out enjoying your tunes. Congratulations and enjoy the ultimate audio experience with MTX!

## **FEATURES**

- Compact Size
- Double Sided PCB
- Surface Mount Components
- MOSFET Design
- LPF and HPF Crossover
- Adjustable Bass Boost
- Noise Free Design
- Short, Thermal, and High/Low Voltage Protection

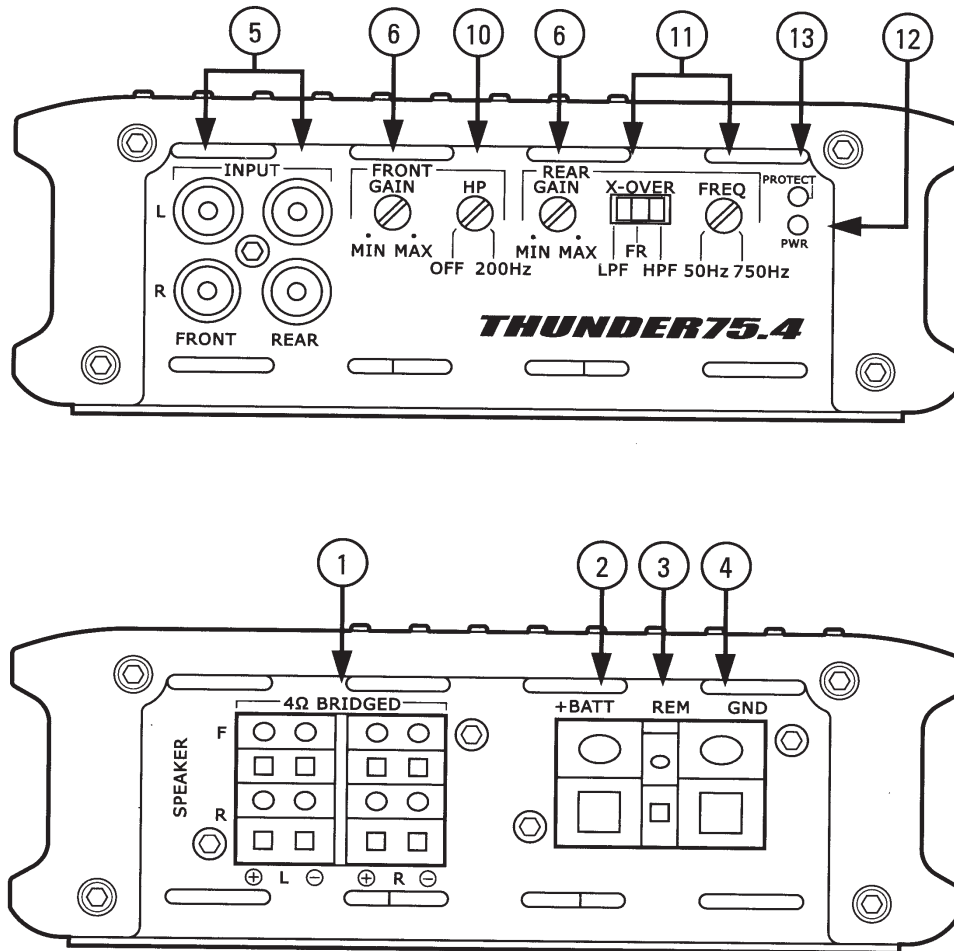
## **CONTROL FUNCTIONS**

1. **Speakers** - Connect speakers/subwoofers to these terminals. Be sure to check wire for proper polarity. Never connect the speaker cables to the chassis ground.
2. **+BATT (+12 Volt Power)** - Connect this terminal through a FUSE or CIRCUIT BREAKER to the positive terminal of the vehicle battery or the positive terminal of an isolated audio system battery. **WARNING:** Always protect this power cable by installing a fuse or circuit breaker of the appropriate gauge within 18 inches (45cm) of the battery terminal connection.
3. **Remote Turn On** - This terminal turns on the amplifier when (+) 12 volt is applied to it. Connect it to the remote turn on lead of the head unit or signal source.
4. **GND** - Connect this cable directly to the frame of the vehicle. Make sure the metal frame has been stripped of all paint down to the bare metal. Use the shortest distance possible. It is always a good idea to replace the factory ground at this time with a cable equal or larger than the new amplifier power cable. **CAUTION:** Do not connect this terminal directly to the vehicle battery ground terminal or any other factory ground points.
5. **RCA Input Jacks** - These RCA input jacks are for use with source units that have RCA outputs. A source unit with a minimum level of 200mV is required for proper operation. The use of high quality twisted pair cables is recommended to decrease the possibility of radiated noise entering the system.
6. **Gain Control** - The Gain control will match the amplifier's sensitivity to the source units signal voltage. The operating range is 5V to 200mV. **NOTE:** This is NOT a volume control.
7. **Low Pass Filter Control (Mono Block)** - This control is used to select the desired low pass x-over frequency. The frequency can be adjusted from 40Hz to 220Hz for all bass mono models.
8. **Subsonic Filter Control (Mono Block)** - This control can filter out unwanted low frequency from 20Hz (OFF) to 50Hz. This function should only be used with vented enclosures.

9. Bass Boost Level Switch (Mono Block) - This switch can boost bass level by 0dB, 6dB, or 12dB. The boost frequency is centered at 50Hz.
10. High Pass Filter (Full Range) - This controls the frequencies played for the front channels. Low frequencies can be cut off from OFF to 200Hz. At OFF position, no low frequencies cut off, meaning full range.
11. X-Over Mode and Frequency Control (Full Range) - These controls allow control over the frequencies played for the rear channels. There is an option for Low Pass, Full Range, or High Pass. In LP or HP mode, the crossover frequency can be tuned from 50Hz to 750Hz.
12. Power Indicator - This LED will light up when the amplifier is working properly.
13. Protection Indicator - The Red LED will light up and flash if there is a fault presented to the amplifier. Please disconnect the amplifier and resolve the fault before reconnecting the amplifier.

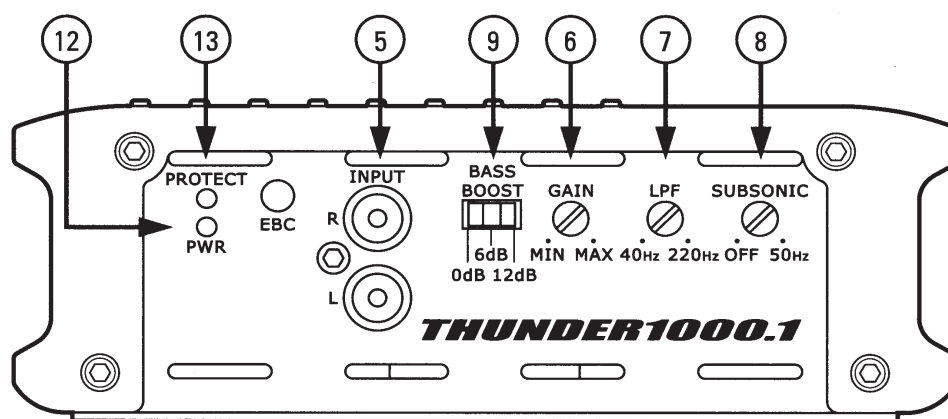
## PANEL LAYOUT

### 4-Channel Amplifier Panel Layout

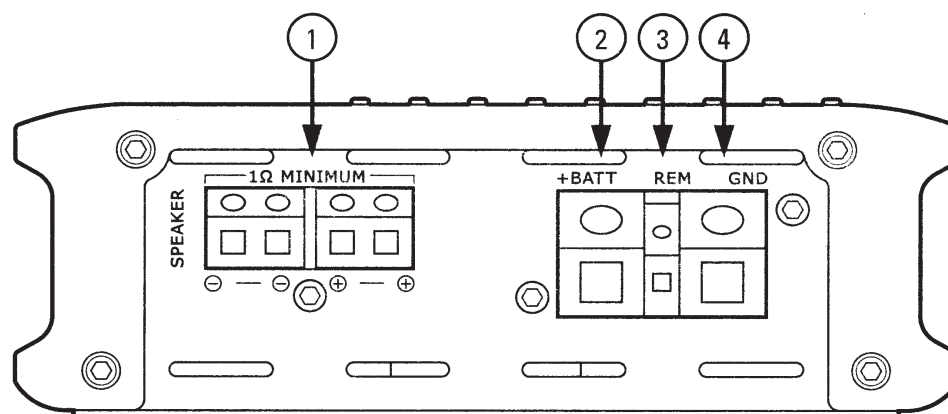


# **PANEL LAYOUT**

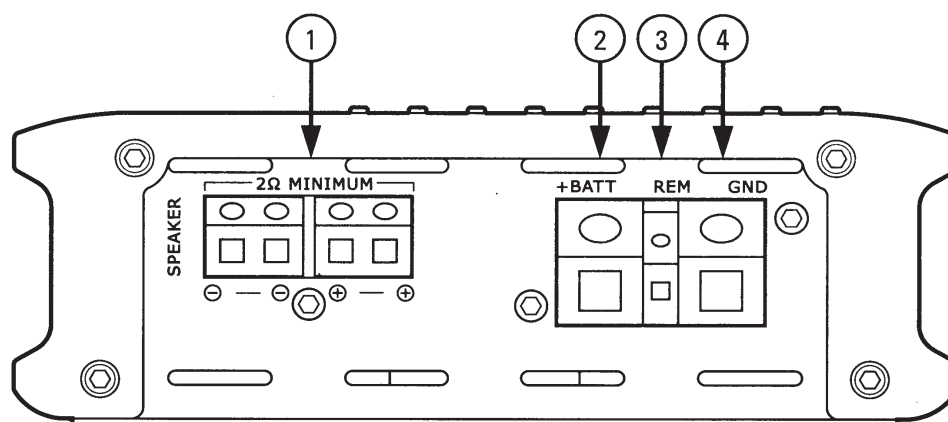
Mono Block Amplifier Panel Layout



THUNDER1000.1 / THUNDER500.1



THUNDER1000.1



THUNDER500.1

## **WIRING DIAGRAM**

See page 26 for amplifier wiring diagrams.

## **INSTALLATION AND MOUNTING**

MTX recommends your new THUNDER Series amplifier be installed by a 12 volt installation specialist. Any deviation from specified installation instructions can cause serious damage to the amplifier, speakers and/or vehicle's electrical system. Damage caused from improper installation is NOT covered under warranty. Please verify all connections prior to system turn on.

1. Disconnect the vehicle's negative battery cable.
2. Determine the mounting place for your MTX amplifier. Keep in mind there should be sufficient air flow for proper cooling. Mark the mounting holes from the amplifier to be drilled. Before drilling make sure all vehicle wires, gas lines, brake lines and gas tank are clear and will not interfere with installation. Drill the desired holes and mount the MTX amplifier.
3. Install a positive (+) power cable from the vehicle's battery through the firewall using a grommet or firewall bushing to avoid cable damage from sharp edges of the firewall. Run the cable through the interior of the vehicle and connect it to the amplifier's (+BATT) terminal. Do not connect to the battery at this time. **NOTE:** Use only proper gauge wire for both positive and negative connections.
4. Install a circuit breaker or fuse within 18 inches of the battery. This effectively lowers the risk of severe damage to you or your vehicle in case of a short circuit or accident. Make sure the circuit breaker is switched Off or the fuse is taken out of the fuse holder until all connections are made. Now connect your positive power cable to the positive battery terminal of the battery.
5. Grounding - Locate a proper ground point on the vehicle's chassis and remove all paint, dirt or debris to reveal a bare metal surface. Attach the ground wire to that contact point. Connect the opposite end of the ground wire to the (GND) terminal on the MTX amplifier.
6. Connect a Remote Turn-On wire from the source unit to the MTX amplifier's (REM) terminal. If the source unit does not have a dedicated Remote Turn-On lead, you may connect to the source unit's Power Antenna lead.
7. Supply the signal to your MTX amplifier by connecting the signal cables using high quality RCA to the corresponding outputs at the source unit and inputs of the amplifier.
8. Connect your speakers to your MTX amplifier's speaker terminals using the correct gauge speaker wire. Your MTX amp can drive a  $2\Omega$  (THUNDER75.4 & THUNDER500.1) and  $1\Omega$  (THUNDER1000.1) minimum load for optimum power.
9. Double check all previous installation steps, in particular, wiring and component connections. Once verified, reconnect the vehicle's negative battery cable, turn the circuit breaker On or place the fuse in the fuse holder.

**NOTE:** Gain Levels on the amplifier should be turned all the way down (counter clockwise) before proceeding with adjustments.

## INSTALLATION

For proper performance and safety, MTX recommends installing an inline fuse per the owner's manual instructions according to the following.

THUNDER1000.1	100A Fuse
THUNDER500.1	60A Fuse
THUNDER75.4	60A Fuse

## TROUBLESHOOTING

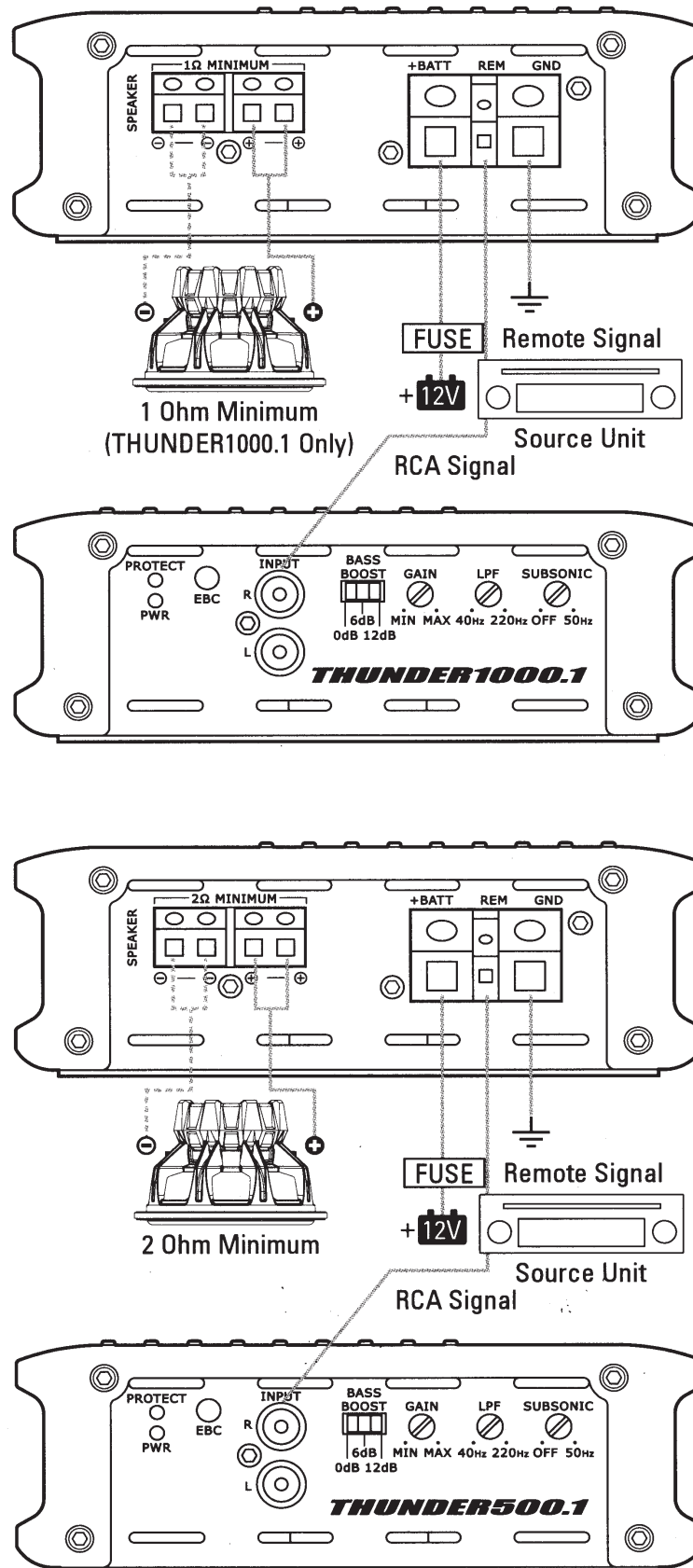
Problem	Cause	Solution
No LED Indication	No +12V at Remote Connection	Supply +12V to Terminal
	No +12V at Power Connection	Supply +12V to Terminal
	Insufficient Ground Connection	Verify Ground Connection
	Blown Power Fuse	Replace Fuse
Power LED On, No Output	Volume on Source Unit Off	Increase Volume on Source Unit
	Speaker Connections Not Made	Make Speaker Connections
	Gain Control on Amplifier Off	Turn Up Gain
	Signal Processing Units Off	Apply Power to Signal Processor
	All Speakers Blown	Replace Speakers
Output Distorted	Head Unit Volume Set Too High	Lower Head Unit Volume
	Amplifier Gain Set Too High	Lower Amplifier Gain
Balance Reversed	Speaker Wire L & R Reversed	Correct Speaker Wire Orientation
	RCA Inputs Reversed	Reverse RCA Inputs
Bass is Weak	Speakers Wired Out of Phase	Wire Speakers with Correct Phase
	Not Using MTX Subwoofers	Buy MTX Subwoofers
Blowing Fuses	Excessive Output Levels	Lower the Volume
	Amplifier Defective	Return for Service

## SPECIFICATIONS

Model	THUNDER1000.1	THUNDER500.1	THUNDER75.4
Description	1000 W RMS Mono	500 W RMS Mono	4 x 75 W RMS
<b>RMS Power at 14.4V</b>			
1Ω Load	1000 W RMS	NA	NA
2Ω Load	600 W RMS	500 W RMS	4 x 100 W RMS
4Ω Load	350 W RMS	300 W RMS	4 x 75 W RMS
<b>Features</b>			
Input Level	0.2 - 5V	0.2 - 5V	0.2 - 5V
Frequency Response	20Hz - 220Hz	20Hz - 220Hz	15Hz - 25kHz
Low Pass Filter (LPF)	40Hz - 220Hz	40Hz - 220Hz	50Hz - 750Hz (Rear)
High Pass Filter (HPF)	NA	NA	10Hz - 200Hz (Front) 50Hz - 750Hz (Rear)
Subsonic Filter	20Hz - 50Hz	20Hz - 50Hz	NA
THD at 4Ω, 1W	<0.3%	<0.3%	<0.05%
Signal-to-Noise Ratio	>75dB	>75dB	>78dB
Bass Boost	0 - 6dB - 12dB Switchable	0 - 6dB - 12dB Switchable	NA
Best Efficiency at 4Ω	>80%	>80%	>60%
Minimum Load	1Ω	2Ω	2Ω
External Bass Control (EBC) Optional Remote	Yes	Yes	NA
Low Voltage Protection	Yes, Protect <8V	Yes, Protect <8V	Yes, Protect <8V
Short Circuit Test @ Max Power	Pass	Pass	Pass
Overheat Protect Temperature	Protect at 80°C / 176°F	Protect at 80°C / 176°F	Protect at 80°C / 176°F
Components & PCB	SMD Parts / Double Sided FR-4 PCB	SMD Parts / Double Sided FR-4 PCB	SMD Parts / Double Sided FR-4 PCB
<b>Dimensions</b>			
Height	2.25" (56.5mm)	2.25" (56.5mm)	2.25" (56.5mm)
Width	6.31" (160mm)	6.31" (160mm)	6.31" (160mm)
Length	12.13" (308.5mm)	8.94" (227.5mm)	12.13" (308.5mm)

# **WIRING DIAGRAM**

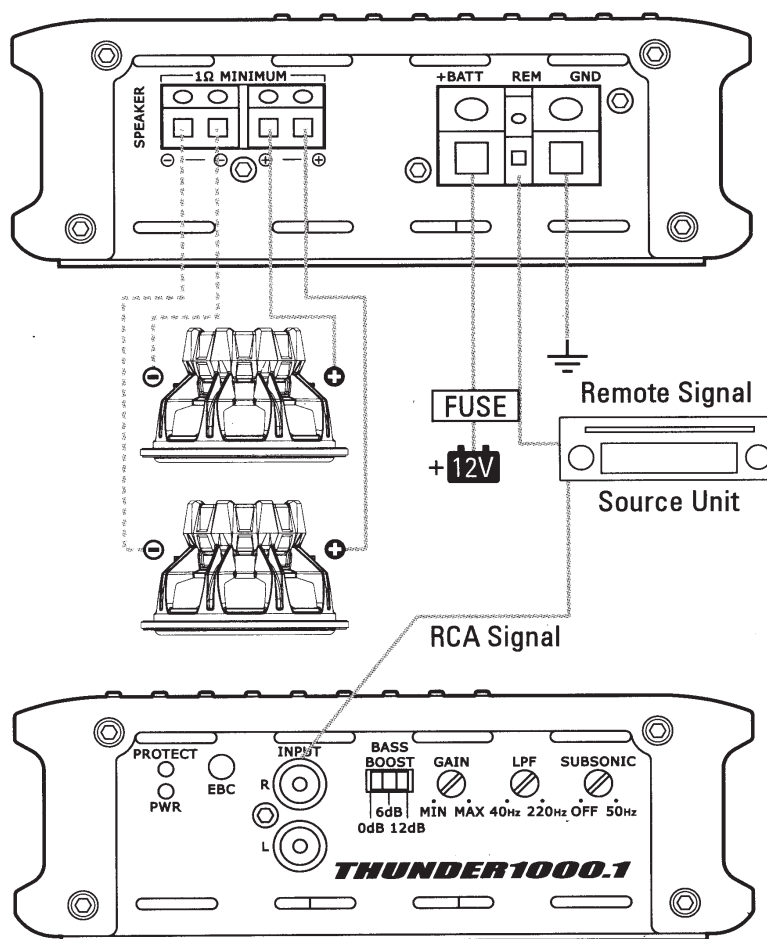
Mono Block Amplifier Wiring (Single Subwoofer Load)





## WIRING DIAGRAM

### Mono Block Amplifier Wiring (Multi-Subwoofer Load)



**NOTE:** Equivalent parallel woofer load cannot be less than the minimum load rating. The two negative terminals are paralleled inside the amplifiers, as are the two positive terminals. These are monoblock amplifiers, not multi-channel amplifiers. **The minimum load for the THUNDER500.1 amplifier is 2Ω. The minimum load for the THUNDER1000.1 amplifier is 1Ω.**

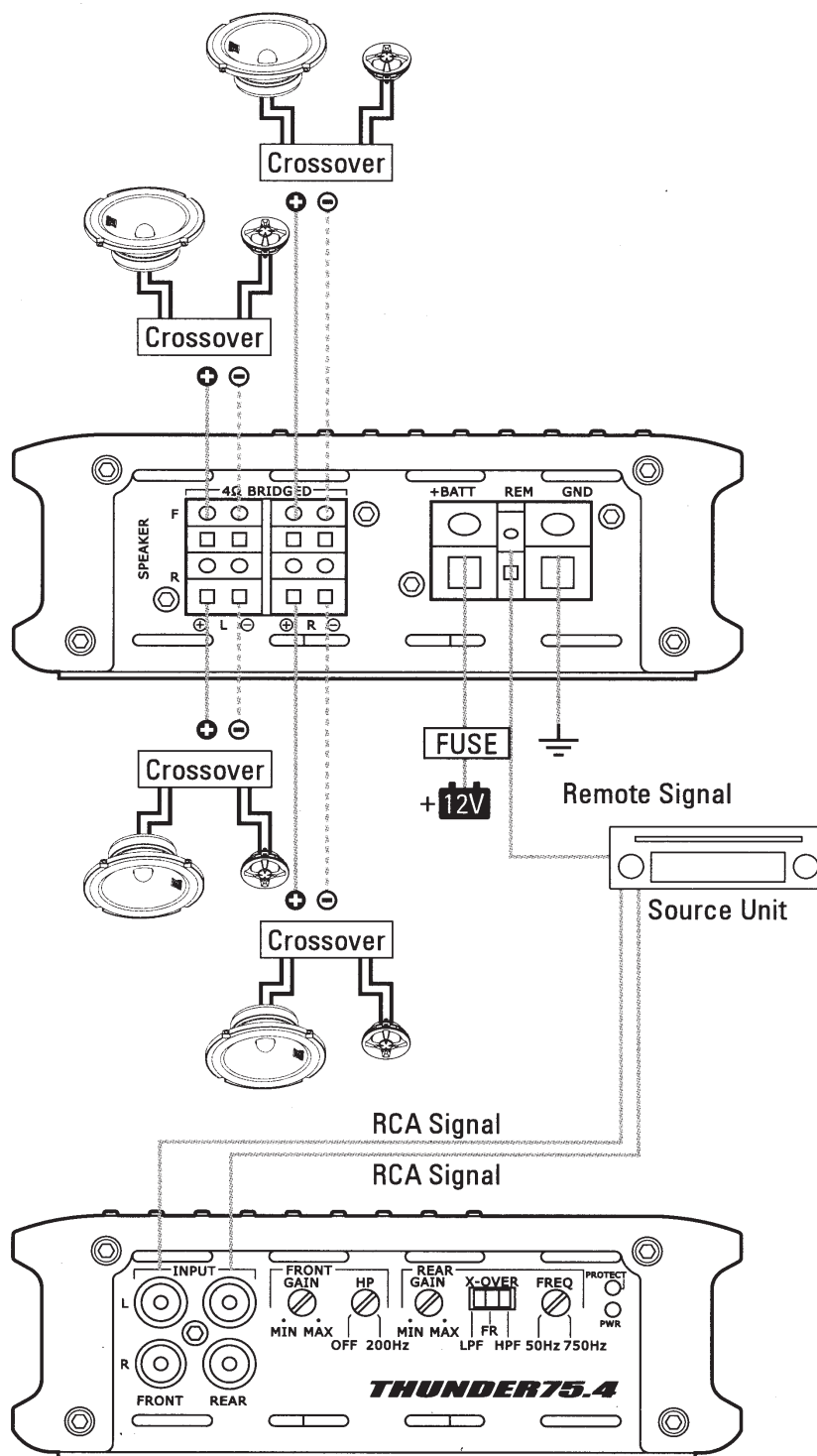
**NOTA:** La carga equivalente de woofers paralelos no puede ser menos que el valor nominal de la carga. Las dos terminales negativas están en paralelo dentro de los amplificadores y también las terminales positivas. Estos son amplificadores de monobloque, no amplificadores multicanal. **La carga mínima para el amplificador THUNDER500.1 es 2 Ω. La carga mínima para el amplificador THUNDER1000.1 es 1 Ω.**

**OBSERVAÇÃO:** A carga paralela equivalente do woofer não pode ser menor que a carga nominal mínima. Os dois terminais negativos, assim como os terminais positivos, estão em paralelo dentro dos amplificadores. Os amplificadores são monobloco e não amplificadores multicanais. **A carga mínima do amplificador THUNDER500.1 é 2Ω. A carga mínima do amplificador THUNDER1000.1 é 1Ω.**

**REMARQUE :** Une charge de caisson de graves en parallèle ne peut être inférieure à la valeur nominale minimale de charge. Les deux bornes négatives sont mises en parallèle à l'intérieur des amplificateurs, comme le sont les deux bornes positives. Ce sont des amplificateurs monoblocs et non des amplificateurs multi-canaux. **La charge minimale pour l'amplificateur THUNDER500.1 est de 2 Ω. La charge minimale pour l'amplificateur THUNDER1000.1 est de 1 Ω.**

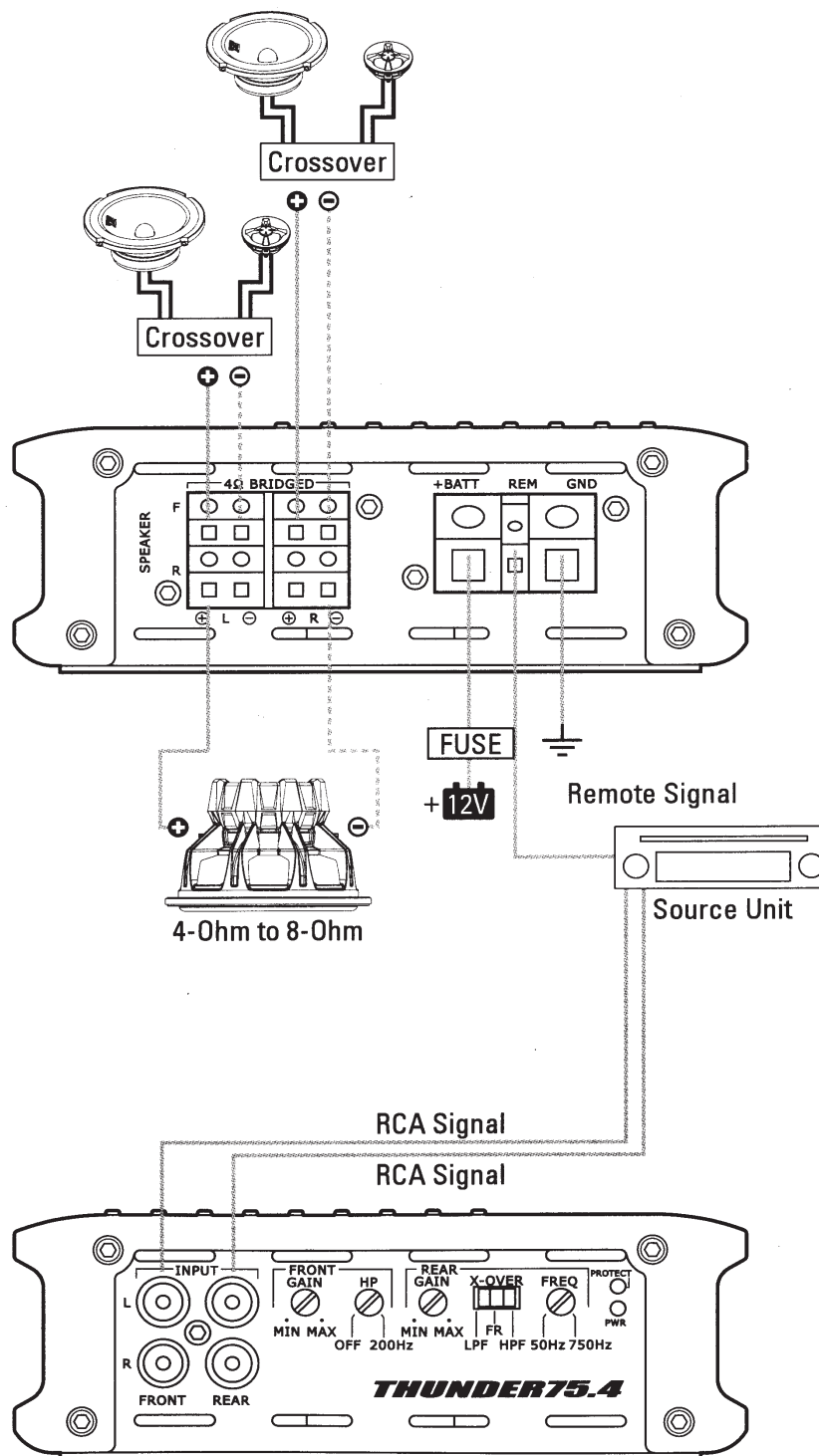
# WIRING DIAGRAM

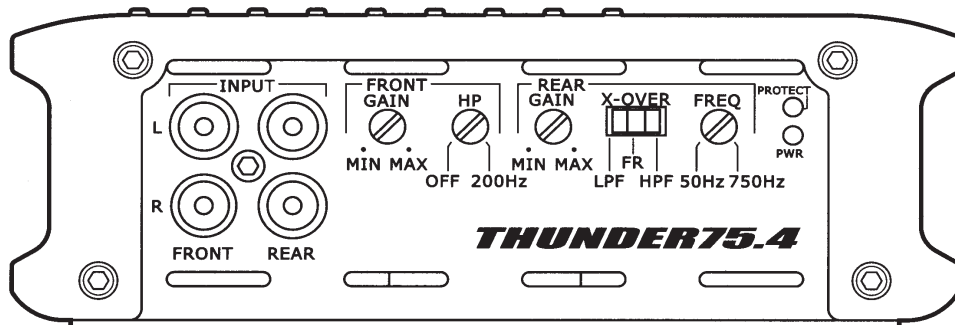
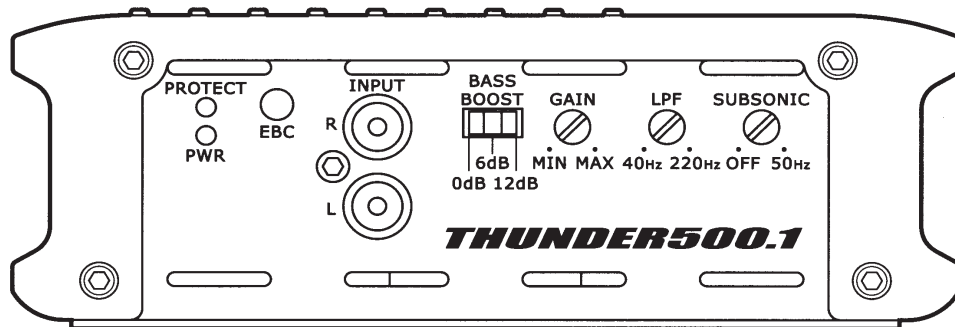
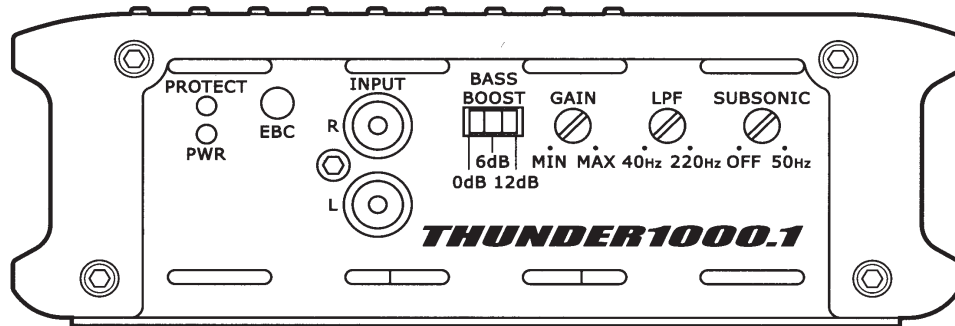
THUNDER75.4 Amplifier Wiring (4-Channel Mode)



# WIRING DIAGRAM

THUNDER75.4 Amplifier Wiring (3-Channel Mode)





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Due to continual product development, all specifications are subject to change without notice.

MTX Audio, 4545 East Baseline Rd. Phoenix, AZ 85042 U.S.A.

MTX004553 RevA 11/12

NDM661

# Mitek Mobile Limited Warranty

## Our Guarantee

Mitek Mobile products (including MTX, Streetwires, Coustic and Magnum) purchased in the USA after 1/1/2013 from an authorized Mitek retailer are guaranteed to be free from material defects in products and workmanship for five (5) years to the original end user purchaser, subject to the terms and conditions below.

## Length of Limited Warranty and Remedy

The warranty period begins the day the product is purchased by the end user, and is limited to the original retail purchaser of the product.

## Free Replacement Period (2 Years)

Products found to be defective in materials or workmanship during the first 2 years will be, at Mitek's option, repaired or replaced by Mitek at no charge. When a product is replaced during first 2 years, the warranty does not renew, it continues on from the original date of purchase.

## Proration Period (Years 3-5)

The prorated purchase price of any product which becomes defective after the first two years and prior to the end of the warranty period may be credited toward the purchase of a new Mitek product. The amount of the proration shall be determined by dividing the purchase price by the number of months of the warranty period (60), and then multiplying the result by the number of months remaining in the warranty period. Any partial months will be rounded to the nearest whole month. For example, a product purchased 37 months ago for \$100 would be calculated by dividing \$100 by 60 months = \$1.66/month, multiplied by 23 (the months remaining in the warranty period) for a prorated warranty amount of \$38.33.

You are responsible for all costs for removal, reinstallation and proper packaging, shipping, insurance or other freight charges incurred in the shipment of the product or part to Mitek. Mitek will ship the repaired or replaced Mitek product or replacement parts to you at no charge. Mitek reserves the right to utilize reconditioned, refurbished, repaired or remanufactured products or parts in the warranty repair or replacement process. Such products and parts will be comparable in function and performance to an original product or part and warranted for the remainder of the original warranty period.

## What Is Not Covered

This warranty does not cover the product if it has been subject to neglect, abuse, misuse, incorrect connection, or if it has been subject to unauthorized repair or alterations of any nature, or if the serial number has been altered or removed, and the warranty does not extend to cosmetics or finish. This warranty only applies to products installed and used in the USA.

## What You Must Do to Obtain Warranty Service

You must contact Mitek Warranty via our website at MTX.com, or via email at [mitekwarrenty@mitekusa.com](mailto:mitekwarrenty@mitekusa.com), or by calling 800-556-2888. If you did not purchase the product directly from Mitek, a proof of purchase must be provided in order to receive warranty consideration. You will be issued a Return Authorization (RA) number which must be written on the outside of the package before returning the product to Mitek.

## No Other Warranties

THE LIMITED WARRANTIES DESCRIBED ABOVE ARE EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. MITEK DISCLAIMS AND EXCLUDES ALL OTHER EXPRESS WARRANTIES, AND DISCLAIMS AND EXCLUDES ALL WARRANTIES IMPLIED BY LAW, INCLUDING WITHOUT LIMITATION THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. TO THE EXTENT THAT APPLICABLE LAW PROHIBITS THE EXCLUSION OF IMPLIED WARRANTIES, THE DURATION OF ANY APPLICABLE IMPLIED WARRANTY IS LIMITED TO THE PERIOD SPECIFIED FOR THE EXPRESS WARRANTY. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Any oral or written description of any Mitek product is for the sole purpose of identifying it and shall not be construed as an express warranty.

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Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state. This limited warranty supersedes all prior warranties and is not transferable from the original consumer purchaser.

Any assistance Mitek provides to or procures for you outside the terms, limitations or exclusions of this limited warranty will not constitute a waiver of such terms, limitations or exclusions, nor will such assistance extend or revive the warranty. Mitek will not reimburse you for any expenses incurred by you in repairing or replacing any defective product, except for those incurred with Mitek's prior written permission.